

U.S. Department of Energy
Technical Qualification Program

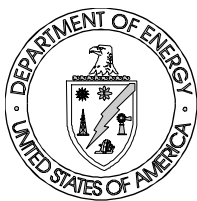
Technical Training Topical Area

Study Guide

For the

*Instrumentation and Control
Qualification Standard*

August 1996



Competency 3.3 Instrumentation and control personnel shall demonstrate a familiarity level knowledge of the training and qualification program(s) requirements identified in Department of Energy (DOE) Order 5480.20, Personnel Selection, Qualification, Training, and Staffing Requirements at DOE Reactor and Non-Reactor Nuclear Facilities.

1. Supporting Knowledge and Skills

- a. Discuss the meaning of “qualification” and its importance to quality.
- b. Describe the purpose and scope of DOE Order 5480.20, Personnel Selection, Qualification, Training, and Staffing Requirements at DOE Reactor and Non-Reactor Nuclear Facilities.
- c. Discuss why certain skills or proficiencies should be demonstrated periodically.
- d. Describe the types of changes to a program or process that require modification to a training program.

NOTE: DOE Order 5480.20 was replaced by DOE Order 5480.20A.

2. Self-Study Activities

- NOTES:
- The DOE Orders are in a state of transition. Please refer to the following gopher site for a cross reference of new and old Orders:
gopher://VM1.HQADMIN.DOE.GOV:70/00/doemenu1/directiv/251cross.asc
 - Below are two web sites containing many of the references you may need.

Web Sites		
Organization	Site Location	Notes
Department of Energy	http://cted.inel.gov/cted/index.html	DOE Standards, Guides, and Orders.
U.S. House of Representatives	http://law.house.gov/cfr.htm	Searchable Code of Federal Regulations



Section 5.0

Read DOE Order 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*.

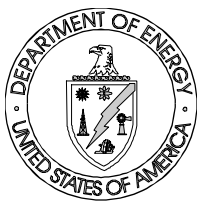
- EXERCISE 3.3-A What is the purpose of DOE Order 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*?
- EXERCISE 3.3-B What types of facilities are covered under DOE Order 5480.20A?
- EXERCISE 3.3-C Using DOE Order 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*, as a reference, describe the general requirements placed on Management and Operating (M&O) contractors must meet for the following areas:
- Qualification and certification of facility personnel
 - Training and qualification of sub-contractors
 - General employee training and unescorted access requirements
 - Continuing training and requalification
 - Exceptions and alternatives to DOE Order 5480.20A requirements
 - Personnel selection
 - Training and qualification
- EXERCISE 3.3-D Using DOE Order 5480.20A as a reference, state the entry level requirements for various facility positions.

Read pages I-2, DOE Order 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*.

- EXERCISE 3.3-E What types of changes to a program or process might require modification to a training program?
- EXERCISE 3.3-F How is qualification defined within DOE Order 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*?

Read pages 4 through 5 of DOE Order 5700.6C, *Quality Assurance*.

- EXERCISE 3.3-G Using DOE Order 5700.6C, *Quality Assurance*, relate the importance of qualification to DOE's quality assurance requirements.



3. Summary

DOE's objectives are to ensure the development and implementation of contractor-administered training programs that provide consistent and effective training for personnel at DOE nuclear facilities. DOE Order 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*, contains minimum requirements that must be included in training and qualification programs. The requirements are based on DOE, Nuclear Regulatory Commission, and related industry standards, and are applicable to all operable DOE nuclear facilities. Because the operation of DOE reactor and non-reactor nuclear facilities involves certain risks to employees, the public, and the environment, well-trained and qualified operating organization personnel are of extreme importance. A vital element in ensuring a well-trained and qualified work force is the implementation of a systematic approach to training (SAT). This approach has proven effective in the commercial nuclear power industry and in other major industries; therefore, the Department requires that training programs for personnel in operating organizations at DOE nuclear facilities are established using a SAT. Experience has also shown that better operating nuclear facilities have well-defined, effectively administered policies and procedures to control the activities associated with personnel training. This Order requires the establishment and implementation of certain training-related procedures.

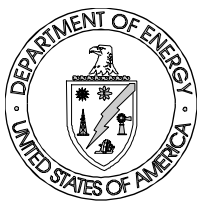
4. Exercise Solutions

EXERCISE 3.3-A What is the purpose of DOE Order 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*?

ANSWER 3.3-A The purpose of DOE Order 5480.20A is as follows: "To establish selection, qualification, and training requirements for management and operating (M&O) contractor personnel involved in the operation, maintenance, and technical support of Department of Energy-owned (DOE-owned) Category A and B reactors and non-reactor nuclear facilities."

EXERCISE 3.3-B What types of facilities are covered under DOE Order 5480.20A?

ANSWER 3.3-B All operable DOE-owned Category A and B reactors and non-reactor facilities are covered by the Order. The Naval Nuclear Propulsion Program is exempt. "Attachment 1 sets requirements that are to be applied to the universe of contractors awarded DOE management and operating contracts involving operable DOE-owned Category A and B reactors and non-reactor nuclear facilities."

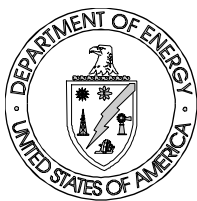


EXERCISE 3.3-C Using DOE Order 5480.20A, Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities, as a reference, describe the general requirements placed on Management and Operating (M&O) contractors must meet for the following areas:

- Qualification and certification of facility personnel
- Training and qualification of sub-contractors
- General employee training and unescorted access requirements
- Continuing training and requalification
- Exceptions and alternatives to DOE Order 5480.20A requirements
- Personnel selection
- Training and qualification

ANSWER 3.3-C The following matrix outlines the location of DOE Order 5480.20A requirements for the listed areas.

Area	DOE Order 5480.20A Citation
Qualification and certification of facility personnel	Chapter I, Paragraphs 5 and 6
Training and qualification of sub-contractors	Chapter I, Paragraph 3
General employee training and unescorted access requirements	Chapter I, Paragraphs 7.e.
Continuing training and requalification	Chapter I, Paragraphs 7.d. and 10
Exceptions and alternatives to DOE Order 5480.20A requirements	Chapter I, Paragraphs 11 and 13
Personnel selection	Chapter I, Paragraph 4
Training and qualification	Chapter I, Paragraphs 5 and 7



Section 5.0

EXERCISE 3.3-D Using DOE Order 5480.20A as a reference, state the entry level requirements for various facility positions.

ANSWER 3.3-D The following matrix outlines the location of DOE Order 5480.20A entry-level requirements for the listed positions.

Position	Category A Facilities	Category B Facilities	Non-Reactor Facilities
Managers	Chapter II, Paragraph 2.a.	Chapter III, Paragraph 2.a.	Chapter IV, Paragraph 2.a.
Supervisors	Chapter II, Paragraph 2.b.	Chapter III, Paragraph 2.b.	Chapter IV, Paragraph 2.b.
Operators	Chapter II, Paragraphs 2.3.(1) and (2)	Chapter III, Paragraph 2.c.	Chapter IV, Paragraph 2.c.
Technicians	Chapter II, Paragraph 2.3.(3)	Chapter III, Paragraph 2.d.	Chapter IV, Paragraph 2.d.
Maintenance Personnel	Chapter II, Paragraph 2.e.(4)	Chapter III, Paragraph 2.e.	Chapter IV, Paragraph 2.e.
Technical Staff	Chapter II, Paragraph 2.c.	Chapter III, Paragraph 2.f.	Chapter IV, Paragraph 2.f.
Training Organization Personnel	Chapter II, Paragraph 2.d.	Chapter III, Paragraph 2.g.	Chapter IV, Paragraph 2.g.

EXERCISE 3.3-E What types of changes to a program or process might require modification to a training program?

ANSWER 3.3-E Changes in areas such as policies and/or procedures, system or component design, job requirements, regulatory requirements, and industry guidelines or commitments. Adjustments should also be made as a result of reviews of operating experience information such as Occurrence Reports, inspection reports, information notices, and bulletins.



EXERCISE 3.3-F How is qualification defined within DOE Order 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*?

ANSWER 3.3-F According to DOE Order 5480.20A, qualification is defined as follows:

“Qualification is defined in terms of education, experience, training, examination, and any special requirements necessary for performance of assigned responsibilities.” The Order further states, “The requirements in this Order are based on industry standards and are intended to provide reasonable assurance that personnel at DOE nuclear facilities possess qualifications to operate and maintain the facility safety and reliably under all conditions.” DOE Order 5480.20A, page I-2.

EXERCISE 3.3-G Using DOE Order 5700.6C, *Quality Assurance*, relate the importance of qualification to DOE's quality assurance requirements.

ANSWER 3.3-G DOE Order 5700.6C, section II A. 2., paragraphs a., d., and f. state the following regarding qualification:

“a. Personnel performing work should be capable of performing their assigned tasks. Qualification requirements should be established for specific job categories, such as operators, designers, managers, supervisors, inspectors, welders, engineers, scientists, and independent assessment personnel.”

“d. Personnel performing work that requires special skills or abilities should be qualified prior to performing work.”

and

“f. Training should be subject to on-going review to determine program and instruction effectiveness. Training and qualification should be upgraded whenever needed improvements or other enhancements are identified.”